

PATENT ABSTRACTS OF JAPAN

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(54) INK JET PRINTER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an ink jet printer wherein a textile printing operation to a cloth is efficiently and immediately executed without loss of time by reducing a time period for executing the flushing for ejecting ink from a nozzle on an ink jet head.

SOLUTION: A length of an ink receiving groove 50 that is provided on a platen 10 in a direction Y and receives ink drops which are ejected from the nozzle of the ink jet head 30 and downwardly dripped through a cloth 20 to a portion below the cloth 20 is extended in the direction Y of the surface of the platen 10 such that the end section 52 of the ink receiving groove is exposed to a portion outside the side edge of the cloth 20 mounted on the platen 10. The ink for flushing can be ejected to a portion inside the edge section 52 of the ink receiving groove 50 exposed to the portion outside the side edge of the cloth 20 from the nozzle of the ink jet head 30 which is moved to a portion above the edge section of the ink receiving groove 50.

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CLAIMS

[Claim(s)]

[Claim 1] Ink is made to inject from the nozzle with which said ink jet head was equipped in the ink jet head while moving the platen upper part in the direction of Y. It is the ink jet printer which prints it the cloth carried in said platen in the ink. In the direction of Y on the front face of a platen directly under a transit way the nozzle with which said ink jet head was equipped runs In the ink jet printer with which the ink receptacle slot which receives the ink which it is injected from said nozzle and dropped at a cloth lower part through the cloth [directly under] of it was prepared So that the edge of said ink receptacle slot may be exposed to a way outside the cloth side edge carried in said platen To the edge circles side of the ink receptacle slot which the ink receptacle slot was formed for a long time in the direction of Y on the front face of a platen, and was exposed to the way outside the cloth side edge The ink jet printer characterized by being constituted so that the regurgitation of the ink for Flushing can be carried out from the nozzle of said ink jet head to which it was made to move above the edge of this ink receptacle slot.

[Claim 2] The ink jet printer according to claim 1 with which the ink receptacle slot was formed in the direction of Y on the front face of a platen for a long time so that the edge of the ink receptacle slot right and left which make a way breathe out the ink for Flushing from the nozzle of said ink jet head outside the side edge of the cloth both sides carried in said platen might be exposed, respectively.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the ink jet printer which prints it the cloth carried in the platen in the ink injected from the nozzle with which the ink jet head was equipped.

[0002]

[Description of the Prior Art] Recently it is the purpose which attains easy-izing of textile printing of cloth, and speeding up, and printing it cloth using an ink jet printer is performed briskly.

[0003] It is made to inject in the cloth 20 direction in which the ink for textile printing was carried by the platen 10 from two or more nozzles 32 with which that ink jet head 30 inferior surface of tongue was put in order and equipped, moving the cloth 20 upper part in which the ink jet head 30 was carried by the platen 10 along with the guide rail 40 in the direction of Y, as shown in drawing 4 and drawing 5, in case it is printed cloth using this ink jet printer. And it continued in the direction of Y of cloth 20 front face, and textile printing for length of two or more nozzles 32 located in a line in the direction of X of ink jet head 30 inferior surface of tongue has been performed. Moreover, it does in this way, and after continuing in the direction of Y of cloth 20 front face and finishing performing textile printing for length of the direction of X of two or more nozzles 32 on a par with ink jet head 30 inferior surface of tongue, a part for the length of two or more nozzles 32 located in a line in the direction of X of ink jet head 30 inferior surface of tongue in cloth 20 and platen 10 front face are made to slide in the direction of X. It is carrying out by repeating such actuation hereafter, textile printing is continued in the direction of X-Y of cloth 20 front face, and it is *****.

[0004] As shown in drawing 4 and drawing 5, there are some by which the ink receptacle slot 50 is formed in the direction of Y of platen 10 front face directly under a transit way an ink jet head runs in the ink jet printer for this textile printing. And there is a thing of structure which receives the ink which it is injected by the ink receptacle slot 50 from two or more nozzles 32 on a par with ink jet head 30 inferior surface of tongue, and is dropped at it through the cloth [directly under] 20 of it at cloth 20 lower part.

According to this ink jet printer, it is some ink for textile printing injected from two or more nozzles 32 on a par with that ink jet head 30 inferior surface of tongue, and it can let the cloth 20 of nozzle 32 directly under pass, and the ink dropped at cloth 20 lower part can prevent adhering to platen 10 front face. And it can prevent the cloth 20 which makes platen 10 front face slide in the direction of X becoming dirty in the ink.

[0005] Moreover, as shown in the ink jet printer for textile printing at drawing 4, the capping station 60 is established in the side part of the platen 10 which makes the ink jet head 30 stand by. And in the condition of having made the ink jet head 30 standing by to the side part of the platen 10, it is having structure where cap 62 can be put on the perimeter of two or more nozzles 32 on a par with the ink jet head 30 inferior surface of tongue. And the ink which remains for the nozzle 32 dries, and it is having structure which can prevent getting the nozzle 32 blocked with ink.

[0006] In textile printing of the cloth using this ink jet printer, while printing it cloth 20, textile printing is interrupted temporarily and the ink jet head 30 is moved to the capping station 60 of platen 10 side part. And it is made to breathe out so that the cloth 20 in which ink was carried by the platen 10 from two or more nozzles 32 of each on a par with ink jet head 30 inferior surface of tongue moved to the capping station 60 may not be started. And it has prevented the ink of two or more nozzles 32 of each on a par with ink jet head 30 inferior surface of tongue drying, and getting each of that nozzle 32 blocked with ink. The actuation which makes ink breathe out from two or more nozzles 32 of each on a par with this ink jet head 30 inferior surface of tongue is called Flushing.

[0007]

[Problem(s) to be Solved by the Invention] By the way, it is necessary to perform above-mentioned Flushing during the activity which prints it cloth repeatedly for every [every] 3 - 10 seconds. It is because the ink which remains for the nozzle 32 will dry at an early stage and the nozzle 32 will be got blocked with ink, if it is left with the condition of the bore of two or more nozzles 32 to which the reason is located in a line with ink jet head 30 inferior surface of tongue being very narrow, and not carrying out fixed time amount injection of the ink from the nozzle 32. Therefore, in textile printing of the cloth using an ink jet printer, it needed to carry out by having repeated Flushing frequently by the middle, and the great time loss has arisen in textile printing of the part and cloth. And textile printing of cloth was not able to be performed quickly efficiently.

[0008] the time amount for this invention interrupting textile printing of cloth which can cancel such a technical problem temporarily, and performing Flushing -- few -- stopping -- textile printing of cloth -- loss time amount -- it aims at offering the ink jet printer for textile printing which can be performed quickly efficiently few.

[0009]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the ink jet printer of this invention Ink is made to inject from the nozzle with which said ink jet head was equipped in the ink jet head while moving the platen upper part in the

direction of Y. It is the ink jet printer which prints it the cloth carried in said platen in the ink. In the direction of Y on the front face of a platen directly under a transit way the nozzle with which said ink jet head was equipped runs In the ink jet printer with which the ink receptacle slot which receives the ink which it is injected from said nozzle and dropped at a cloth lower part through the cloth [directly under] of it was prepared So that the edge of said ink receptacle slot may be exposed to a way outside the cloth side edge carried in said platen To the edge circles side of the ink receptacle slot which the ink receptacle slot was formed for a long time in the direction of Y on the front face of a platen, and was exposed to the way outside the cloth side edge It is characterized by being constituted so that the regurgitation of the ink for Flushing can be carried out from the nozzle of said ink jet head to which it was made to move above the edge of this ink receptacle slot.

[0010] When performing Flushing while having printed it the cloth front face carried in the platen in this ink jet printer, it can halt making ink inject from two or more nozzles on a par with an ink jet head inferior surface of tongue, and can be made to move above the edge of the ink receptacle slot exposed to the way outside the cloth side edge in which that ink jet head was carried by the platen. And as the cloth carried by the platen is not started, it can be made to breathe out ink from two or more nozzles of each located in a line with the edge circles side of the ink receptacle slot of the ink jet head lower part on the ink jet head inferior surface of tongue. And Flushing of two or more nozzles of each on a par with the ink jet head inferior surface of tongue can be performed. the upper part of the edge of the ink receptacle slot which exposed to the way the ink jet head which interrupted textile printing located in the cloth upper part on that occasion outside the cloth side edge near it -- distance -- the mileage of the direction of Y of the ink jet head at the time of performing Flushing that what is necessary is just to make it move short -- an ink jet head -- the capping station of a platen side part -- distance -- compared with the case where it is made to move for a long time, it can be shortened sharply. In order to resume textile printing for the ink jet head which finished the Flushing with it, it is made to run the platen upper part in the direction of Y, and the migration length of the ink jet head at the time of making it return above the cloth part which interrupted textile printing can also be shortened sharply. Consequently, textile printing of cloth is interrupted temporarily and the total time amount taken to perform Flushing can be shortened sharply.

[0011] In the ink jet printer of this invention, it is good to consider as the structure where the ink receptacle slot was formed in the direction of Y on the front face of a platen for a long time so that the edge of the ink receptacle slot right and left which make a way breathe out the ink for Flushing from the nozzle of said ink jet head outside the side edge of the cloth both sides carried in said platen may be exposed, respectively.

[0012] in this case, the upper part of the edge of the ink receptacle slot exposed to the way outside the right-hand side edge of the cloth near the side in which it discerns in

which the ink jet head which interrupted textile printing just before [at the time of performing Flushing] shall be located between conservative [of the cloth upper part], or left-leaning, and that ink jet head is located, or the left-hand side edge -- an ink jet head -- the direction of Y -- distance -- it can be made to move short And it can be made to breathe out so that the cloth in which ink was carried by the platen from two or more nozzles of each located in a line with the edge circles side of the ink receptacle slot on the ink jet head inferior surface of tongue may not be started. And Flushing of two or more nozzles of each on a par with the ink jet head inferior surface of tongue can be performed. It is made to run the ink jet head which finished the Flushing with it in the direction of Y for resumption of textile printing, and also in case it is made to return above the cloth part which interrupted textile printing, the migration length of the direction of Y of the ink jet head can be shortened sharply. And textile printing is interrupted temporarily and the total time amount which performs Flushing can be shortened sharply. The ink jet printer of this structure is effective in especially the large-sized printer that prints it cloth with wide width of face.

[0013]

[Embodiment of the Invention] Next, the gestalt of operation of this invention is explained according to a drawing. The perspective view in which drawing 1 and drawing 2 show the gestalt of suitable operation of the ink jet printer of this invention, and drawing 1 shows the outline structure, and drawing 2 are the side-face sectional view. Below, this ink jet printer is explained.

[0014] In the ink jet printer of drawing, the delivery roller 12 is supported pivotable in the direction of X inside platen 10 both sides which carried out long reverse gutter-shaped in the direction of Y. The perimeter [upper limit] side of the delivery roller 12 is exposed to platen 10 front face. Above the delivery roller 12, the presser-foot roller 14 is supported free [rotation in the direction of X] possible [rise and fall] to the delivery roller 12. And it is constituted so that the both sides of the cloth 20 carried in the platen 10 may be pressed down with the delivery roller 12 and it can pinch between rollers 14. And by making the synchronous rotation of the delivery roller 12 which it had inside platen 10 both sides carry out in the direction of X, it is constituted so that platen 10 front face can be made to slide cloth 20 in the direction of X. The ink jet head 30 is supported possible [transit] in the direction of Y along with the guide rail 40 by the platen 10 upper part. And ink is made to inject from two or more nozzles 32 with which ink jet head 30 inferior surface of tongue was put in order and equipped in the ink jet head 30 while moving the platen 10 upper part in the direction of Y, and it is constituted so that textile printing can be performed in the direction of Y of cloth 20 front face carried in the platen 10 in the ink in succession. moreover, after continuing in the direction of Y of cloth 20 front face and finishing performing textile printing for length of two or more nozzles 32 which do in this way and are located in a line in the direction of X of ink jet head 30 inferior surface of

tongue The fixed include-angle synchronous rotation of the delivery roller 12 which it had inside platen 10 both sides is made to carry out in the direction of X, and it is constituted so that a part for the length of two or more nozzles 32 located in a line in the direction of X of ink jet head 30 inferior surface of tongue in cloth 20 and platen 10 front face can be made to slide in the direction of X. It is carrying out by repeating such actuation hereafter, and it is constituted so that textile printing can be performed in the direction of X-Y of cloth 20 front face in succession.

[0015] The ink receptacle slot 50 where the cross section carried out the shape of about U characters is put in a row and established in platen 10 front face directly under a transit way of the ink jet head 30 in the direction of Y. And it is constituted so that the ink which it is injected by the ink receptacle slot 50 from two or more nozzles 32 on a par with ink jet head 30 inferior surface of tongue, and is dropped at it through the cloth [directly under] 20 of it at cloth 20 lower part can be received. And it is some ink for textile printing injected from two or more nozzles 32 with which the ink jet head 30 inferior surface of tongue was put in order and equipped, it lets the cloth 20 of nozzle 32 directly under pass, and the ink dropped at cloth 20 lower part is constituted so that it can prevent adhering to platen 10 front face. And it is constituted so that it can prevent the cloth 20 which makes platen 10 front face slide in the direction of X becoming dirty in the ink.

[0016] Although the above configuration is the same as that of the ink jet printer for the conventional textile printing shown in drawing 4 and drawing 5, with the ink jet printer shown in drawing 1 and drawing 2, the ink receptacle slot 50 is formed in the direction of Y of platen 10 front face for a long time so that the edge 52 of an ink receptacle slot may be exposed to a way outside one side edge of the cloth 20 carried in a platen 10. And it is constituted so that it can be made to breathe out so that the cloth 20 in which the ink for Flushing was carried by the platen 10 from two or more nozzles 32 of each on a par with ink jet head 30 inferior surface of tongue moved above the edge 52 of the ink receptacle slot inside [edge 52] the ink receptacle slot exposed to the way outside the cloth 20 side edge may not be started.

[0017] The ink jet printer shown in drawing 1 and drawing 2 It is constituted as mentioned above and sets to this ink jet printer. While having printed it cloth 20 front face carried in the platen 10 It halts making ink inject from two or more nozzles 32 on a par with ink jet head 30 inferior surface of tongue, when performing Flushing. It can be made to move above the edge 52 of the ink receptacle slot which exposed the ink jet head 30 to the way outside one side edge of cloth 20 in which it was carried by the platen 10. And it can be made to breathe out so that the cloth 20 in which ink was carried by the platen 10 from two or more nozzles 32 of each located in a line inside [edge 52] the ink receptacle slot on the ink jet head 30 inferior surface of tongue may not be started. And Flushing of two or more nozzles 32 of each on a par with the ink jet head 30 inferior surface of tongue can be performed. the upper part of the edge 52 of the

ink receptacle slot which exposed to the way the ink-jet head 30 which interrupted textile printing located in the cloth 20 upper part on that occasion outside cloth 20 side edge near it -- distance -- compared with the case where move the ink-jet head 30 for the mileage of the direction of Y of the ink-jet head 30 at the time of performing Flushing to the capping station 60 of platen 10 side part that what is necessary is just to make it move short, and Flushing is performed, it can be shortened sharply. In order to resume textile printing for the ink jet head 30 which finished the Flushing with it, it is made to run the platen 10 upper part in the direction of Y, and the migration length of the ink jet head 30 at the time of making it return above cloth 20 part which interrupted textile printing can also be shortened sharply. Consequently, textile printing of cloth 20 is interrupted temporarily and the total time amount taken to perform Flushing can be shortened sharply.

[0018] Drawing 3 shows the gestalt of other suitable operations of the ink jet printer of this invention, and drawing 3 is the perspective view showing the outline structure. Below, this ink jet printer is explained.

[0019] In the ink jet printer of drawing, the ink receptacle slot 50 continues in the direction of Y of platen 10 front face, and is formed for a long time so that the edges 52 and 54 of ink receptacle slot right and left may be exposed to a way, respectively outside the side edge of cloth 20 both sides carried in a platen 10. And it consists of two or more nozzles 32 of each on a par with ink jet head 30 inferior surface of tongue to which it was made to move above the edges 52 and 54 of the ink receptacle slot right and left so that the ink for Flushing can be made to breathe out so that the cloth 20 carried by the edge 52 of ink receptacle slot right and left and the 54 inside at the platen 10 may not be started.

[0020] Others are constituted like the ink jet printer shown in drawing 1 and drawing 2, and are set to this ink jet printer. It discerns in which the ink jet head 30 which interrupted textile printing just before performing Flushing shall be located between conservative [of the cloth 20 upper part], or left-leaning, the edge 52 of an ink receptacle slot or the upper part of 54 exposed to the way outside the right-hand side edge of the cloth 20 near the side in which the ink jet head 30 is located, or the left-hand side edge -- the ink jet head 30 -- the direction of Y -- distance -- it can be made to move short And it can be made to breathe out so that the cloth 20 in which ink was carried by the platen 10 from two or more nozzles 32 of each located in a line with the edge 52 of the ink receptacle slot or the 54 insides on the ink jet head 30 inferior surface of tongue may not be started. And Flushing of two or more of those nozzles 32 of each can be performed. It is made to run the ink jet head 30 which finished the Flushing with it in the direction of Y for resumption of textile printing, and the migration length of the ink jet head 30 at the time of making it return above cloth 20 part which interrupted textile printing can also be shortened sharply. And textile printing is interrupted temporarily and the total time amount which performs Flushing can be shortened

sharply. The ink jet printer of this structure is effective in especially the large-sized printer that prints the cloth 20 with wide width of face. To namely, the edge 52 of an ink receptacle slot or the upper part of 54 exposed to the way outside the right-hand side edge of the cloth 20 near the side in which the ink jet head 30 which interrupted textile printing in that case just before performing Flushing is located, or the left-hand side edge the edge 52 of an ink receptacle slot or the upper part of 54 which performs Flushing for the ink jet head 30 by moving the ink jet head 30 in the direction of Y -- distance -- it can be made to move to the inside of a short time short

[0021]

[Effect of the Invention] As explained above, according to the ink jet printer of this invention, textile printing of cloth is interrupted temporarily and the total time amount taken to make ink breathe out from two or more nozzles of each on a par with an ink jet inferior surface of tongue, and to perform Flushing can be reduced sharply. And it becomes possible to perform efficiently few textile printing of the cloth by the ink jet printer quickly loss time.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing the outline structure of the ink jet printer of this invention.

[Drawing 2] It is the side-face sectional view of the ink jet printer of this invention.

[Drawing 3] It is the perspective view showing the outline structure of the ink jet printer of this invention.

[Drawing 4] It is the perspective view showing the outline structure of the conventional ink jet printer.

[Drawing 5] It is the side-face sectional view of the conventional ink jet printer.

[Description of Notations]

10 Platen

12 Delivery Roller

14 Presser-Foot Roller

20 Cloth

30 Ink Jet Head

32 Nozzle

40 Guide Rail

50 Ink Receptacle Slot

52 Edge of Ink Receptacle Slot

54 Edge of Ink Receptacle Slot

60 Capping Station

62 Cap